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Social Contacts, Dutch Language Proficiency and Immigrant Economic Performance in the Netherlands: A Longitudinal Study*

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April 10, 2017

Abstract

Using longitudinal data on immigrants in the Netherlands for the years 1991, 1994, 1998, 2002, we examined the impacts of social contacts and Dutch language proficiency on adult foreign-born men's earnings, employment and occupational status. The main conclusions are as follows. On average, social contacts and a good mastery of the Dutch language enhance immigrants' economic performances. The effects are stronger for immigrants with low-skill-transferability than for immigrants with high-skill-transferability, and are stronger for economic migrants than for non-economic migrants. Contact with Dutch people and Dutch organisations unambiguously enhances all aspects of immigrants' economic performance, however, we found no evidence for a positive effect of co-ethnic contact on employment status. To deal with the endogeneity between Dutch language ability and earnings, we use an interaction term between age at migration and a dummy for non-Dutch-speaking origin as the identifying instrument. The selectivity issue of survey respondents and possible reverse causality problem were tackled as well to validate

*Corresponding author: Zhiling Wang. Email: z.wang.vu@gmail.com. This paper has benefited greatly from comments and suggestions made by Thomas de Graaff, Peter Nijkamp and participants at the 55th ERSA conference, Lisbon, and the 30th ESPE conference, Berlin.

our main findings.

Keywords: social capital, Dutch language proficiency, labour market performance, Dutch immigrants, skill transferability.
JEL codes: J15, J61, Z13.

1 Introduction

Turks, Moroccans, Surinamese and Antilleans are the four largest immigrant ethnic minority groups in the Netherlands, and they earn around 20 % less than the natives in the Dutch labour market, ceteris paribus (Van Ours and Veenman, 1999). The Turks and Moroccans were responsive to the 'guest workers' program by the Dutch government, and migrated to the Netherlands in large numbers in the 1960s. Family-reunification in the 1980s and second-generation children born in the Netherlands have then substantially increased the proportion of Turks and Moroccans in the Netherlands. The mass inflow of Surinamese took place after the decolonisation of Surinam in 1975, while large migrant groups from the Netherlands Antilles (still an autonomous area within the Kingdom of the Netherlands) have been arriving since the 1990s.

The economic integration of the four ethnic minorities requires a comprehensive understanding of immigrant economic success in Dutch society (Zorlu and Hartog, 2001). In this paper, we are particularly interested in how social contacts affect Dutch immigrant economic success. We propose the following research questions: to what extent does the ethnic composition of contacts affect immigrant economic success in the Netherlands? How do the effects vary across ethnicity, education level, age at migration, and occupation? A second focus is on the effect of acquiring local language. How does Dutch language proficiency contribute to the economic performance of these four groups?

Many empirical studies on social contacts and economic performance analysed cross-sectional data, where the causal effect of social contacts is hard to infer (see, e.g., Kanas and Van Tubergen, 2006; Lancee, 2010; Lin et al., 1981). There is a paucity of studies of significant adjustment in a dynamic setting. Xue (2008) looks at the role of social networks using a longitudinal survey of immigrants to Canada, and finds that social capital facilitates employment, possibly through a more ethnically diverse network. Kanas et al. (2012) uses data from the German Socio-Economic Panel, and find that inter-ethnic ties with Germans lead to higher occupational status but not to increased income. Piracha et al. (2014) uses the Households Income and Labour Dynamics in Australia longitudinal data, and find a positive effect of social capital on migrants' employment outcomes and wages, especially for women. Moreover, it affects the employment probability of obtaining a white-collar job rather than a blue-collar one.

This paper contributes to the literature in several ways. First, we enrich the social network and labour market performance literature by distinguishing co-ethnic contact and inter-ethnic contact. Second, we add to the literature on the labour market effects of Dutch language profi-

ciency in the Netherlands. Third, we study labour market outcomes more comprehensively than the previous literature by using three measures: labour market earnings, employment probability, and occupational status. Fourth, the Dutch immigrant data enables us to test the causal effect of social contacts and Dutch language proficiency more rigorously in a longitudinal setting.

The remainder of the paper is organised as follows. Section 2 proposes the theory and our hypotheses. Section 3 describes the data and variables. Section 4 presents the empirical analysis. Robustness checks are performed in Section 5, confirming our main results. The final section provides concluding remarks, and discusses avenues for future research.

2 Theory and Hypotheses

The literature both in labour economics and sociology is replete with references to the importance of social networks for labour market performance (mainly earnings and employment)(see, e.g., Granovetter, 1974; Ioannides and Loury, 2004; Montgomery, 1991). Social contacts facilitate economic opportunities by providing access to job information (Lin, 1999; Mouw, 2003). Equally important is the linguistic skill as a host-country specific human capital. The positive effect of destination language proficiency for immigrants' economic well-being has been widely acknowledged in English-speaking countries such as the US, Canada, Australia and the UK (Carliner, 1981; Chiswick and Miller, 1995; 2002; Dustmann and Fabbri, 2003; McManus et al., 1983), as well as non-English speaking countries such as Germany, Spain and Israel (Budria and Swedberg, 2012; Chiswick, 1998; Dustmann and Van Soest, 2001). Destination language proficiency directly enhances earnings and enhances the partial effect of other forms of human capital. Above all, it is then hypothesised that *social contacts and Dutch language proficiency increase the likelihood of employment and earnings of non-western immigrants in the Netherlands.* (H_1)

Immigrants' labour market performance is closely associated with skill transferability (Chiswick and Miller, 2012; Duleep and Regets, 1999), since low-skill-transferability immigrants will be making greater human-capital investment in the Netherlands. Skill transferability can be proxied empirically by age at migration, linguistic distance between origin and destination languages, and host-country specific education. High-skill-transferability immigrants are able to quickly adapt to the new environment by themselves, while social contacts and Dutch language proficiency could be more beneficial to low-skill-transferability immigrants due to

their lack of host-country specific human capital. It is then hypothesised that *social contacts and Dutch language proficiency have a greater impact on the likelihood of employment and earnings for low-skill-transferability immigrants than for high-skill-transferability immigrants in the Netherlands.* (H_2)

The effect of social contacts and Dutch language proficiency varies with migration motives. Economic migrants are those who move primarily because of their own economic opportunities, and are mostly described as ambitious and hard-working (Chiswick, 1999). Compared to non-economic migrants, such as tied movers, refugees and ideological migrants, they are likely to make greater use of social contacts and Dutch language skills to enhance their labour market performance. This leads to the hypothesis that *social contacts and Dutch language proficiency have a greater impact on the likelihood of employment and earnings for economic migrants than for non-economic migrants.* (H_3)

Last but not the least, occupational attainment is an important but frequently neglected indicator of labour market performance in immigrant literature. Apart from years of schooling, training, qualifications, language skills (Chiswick and Miller, 2007; Evans, 1987; Nickell, 1982), social network have also been found to increase occupational status (Kanas et al., 2012; Lin et al., 1981; Mullan, 1989). Certain occupations require social skills and effective communication for success. Blue-collar jobs, such as agricultural workers and machine operators, require technical skills more than the worker's social network. For white-collar jobs, however, such as clerks and service workers, the work performance is closely related to how well they communicate with people. Therefore we hypothesise that *social contacts and Dutch language proficiency have a greater impact on occupational status for white-collar jobs than for blue-collar jobs.* (H_4)

We also analyse the extent to which immigrants in the Netherlands benefit from different types of social contacts. Upon arrival at the destination country, an immigrant faces choices of developing social capital with different types of people, among which ethnicity might be the most important dimension. Contact with the natives yields unambiguously positive returns because it provides immigrants with information on higher quality job offers and assistance in assimilation (Iosifides et al., 2007; Kazemipur, 2006; Lancee, 2012). However, the economic returns of co-ethnic contacts are less clear-cut. Lancee (2010) found that co-ethnic networks do not affect economic outcomes. On the one hand, socializing with co-ethnics provides assistance in job information and initial settlement (Chiswick and Miller, 2005; Clark and Drinkwater, 1998). Yet, while embedding into co-ethnic networks enhances ethnic solidarity, it retards contact with the host society. This may hamper upward economic

mobility.[1] Therefore we hypothesise that *immigrant's contact with Dutch people leads to better economic performance (earnings, employment and occupational status)* (H_5), and that *co-ethnic contact has an ambiguous effect on immigrant's economic performance (earnings, employment and occupational status)* (H_6).

3 Data and Variables

3.1 Data

The data are from the Dutch survey 'Social Position and Use of Public Facilities by Immigrants' (SPVA), which is a large-scale, cross-sectional survey for the four largest non-western immigrant groups in the Netherlands: Turks, Moroccans, Surinamese, and Antilleans. The aim of the survey is to collect information for the analysis of the socio-economic and socio-cultural position of the four largest immigrant ethnic minorities in the Netherlands. The data were collected using a stratified random sampling method to target municipalities with a high percentage of immigrants. The empirical analysis is restricted to adult foreign-born men, with the age ranging from 25 to 64 years. The individuals included are those who were reported as the household head. The sample frame consists of 10 to 13 cities (depending on survey year), where immigrants are relatively overrepresented. It was conducted in year 1991, 1994, 1998 and 2002, with 1981, 1762, 3228, and 1949 households, respectively.

We follow the approach in Martinovic et al. (2009) to create a sample of panel respondents. A number of immigrants participated more than once in the survey. There are in total 718 two-waves participants, 118 three-waves participants, and 18 four-waves participants. Those who participated more than twice (for example a 1991-1994-1998 participant), are registered both as belonging to the 1991-1994 and 1994-1998 panel groups. As a result, a pooled data set of 1450 cases is obtained, with responses on two occasions that are separated by a time distance of 3 to 4 years.[2]

[1] This classification of the two types of social contacts is more frequently called bonding and bridging by sociologists, according to the definitions in Putnam (2000) and Woolcock and Narayan (2000).
[2] A household which has changed its head across waves is excluded from the analysis.

3.2 Dependent and independent variables

In the Appendix, Table A1 shows a list of the dependent and independent (explanatory) variables, with their detailed definitions and coding.

Three different variables jointly measure immigrant labour market performances. *Monthly earnings*: respondents report their monthly labour market earnings from all jobs. *Employment*: dichotomous variable equals 1 if the respondent is working regularly and 0 if the respondent is without a job.[3] *Occupational status*: it is measured in terms of the International Socio-Economic Index (ISEI) (Ganzeboom et al., 1992). It refers to the primary occupation reported in the survey year.

There are several explanatory variables:

Only employed respondents were asked about their working hours, occupations, and sectors. *Contract working hours*: the respondents were asked how many hours they work per week according to the employment contract. *Occupations*: occupations are categorised into two types. Blue-collar workers perform manual labour (e.g. agricultural workers and machine operators), and white-collar workers perform professional, managerial, or administrative work (e.g. service workers, clerks and legislators).[4] *Sectors*: three types are distinguished. Primary sector involves activities of raw materials extraction (e.g. agriculture, horticulture, and forestry), secondary sector involves manufacturing activities (e.g. food processing and construction), and the tertiary sector involves services (e.g. telecommunication and accountants).

Human capital variables for both the origin-country and host-country are included. Education is measured by five dichotomous variables: No education, primary education, lower secondary education, intermediate education, and higher education.[5] *Education in OC*: the highest degree obtained in the country of origin, among the five levels. *Education in NL*: the highest

[3] Respondents who reported to be housewives, incapacitated, students, retired or in other unspecified situations are not included in the sample.

[4] Here we make use of the International Standard Classification of Occupation, ISCO-88, 1-digit level. ISCO codes (1) legislators, senior officials and managers, (2) professionals, (3) technicians and associate professionals, (4) clerks, (5) service workers and shop and market sales workers, are defined as white collar. ISCO codes (6) skilled agricultural and fishery workers, (7) craft and related trades workers, (8) plant and machine operators and assemblers, (9) elementary occupations, are defined as blue collar.

[5] According to Oosterbeek (1992), secondary education in the Netherlands is composed of both vocational and general branches, with different years of schooling. Within each branch, students can enter lower secondary education directly after primary education and can only enter intermediate education upon graduation from the previous one. Higher education refers to higher vocational education and university. We distinguish education as primary education (LO), lower secondary education (LBO/MAVO), intermediate education (MBO/HAVO/VWO), and higher education (HBO/WO).

degree obtained in the Netherlands. *Work experience in OC*: work experience in the country of origin is measured in years. *Work experience in NL*: work experience in the Netherlands is measured in years. *Dutch language proficiency*: it is a categorical variable with (1) do not speak Dutch or find it very difficult, (2) Not very well, sometimes find it difficult, (3) Very well, never find it difficult, where (1) is the reference category.

Social capital variables are included for both co-ethnic contact and contact with Dutch people. *Contact composition during free time*: the respondents were asked about their frequency of Dutch contact and co-ethnic contact during free time. Three categories are, (1) more contacts with co-ethnics, (2) equal contacts with Dutch and co-ethnics, (3) more contacts with the Dutch, where (1) is the reference category. *Contact composition at work*: the respondents were asked about their frequency of Dutch contact and co-ethnic contact at work. Three categories are, (1) more contacts with co-ethnics, (2) equal contacts with Dutch and co-ethnics, (3) more contacts with the Dutch, where (1) is the reference category. *Organisation membership*: the respondents were asked whether they belong to any organisation and whether the composition of the organisation is predominantly Dutch or co-ethnic. Two questions are combined and a variable with three categories is constructed, (1) no membership, (2) member of a predominantly ethnic organisation, (3) member of a predominantly Dutch organisation, where (1) is the reference category.

Other background characteristics are included as well. *Ethnicity*: respondents self-report their ethnicity, including Turks, Moroccans, Surinamese, and Antilleans. The Turks are treated as the reference group. *Municipality*: respondent's place of residence. Amsterdam, Rotterdam, Den Haag, Utrecht, Eindhoven, Enschede, Almere, Alphen aan den Rijn, Bergen op Zoom, Hoogezand-Sappemeer, Delft, Dordrecht, and Tiel are identified in the survey and are included in the analysis. Amsterdam is the reference category. *Ethnic concentration*: is measured by the proportion of the respondent's ethnic group in the population of the city of residence, for Turks, Moroccans, Surinamese, and Antilleans.[6] *Nationality*: dichotomous variable equals 1 if the respondent reported having Dutch nationality (citizenship) and 0 otherwise. *Married*: dichotomous variable equals 1 if the respondent is married (spouse present) and 0 otherwise. *Number of children*: the respondents were asked how many children they have at home in the Netherlands and also outside home. We create a new variable by summing up the numbers. *Years since migration*: Years of stay in the Netherlands. *Migration motives*: migration motives are categorised into four types. Work, study, family (mainly family reunification, marriage or being brought to the Netherlands by parents) and other reasons (political situation in the origin-country, health reasons, etc).

[6]The ethnic distribution of population within cities is from Statistics Netherlands.

3.3 Descriptive statistics

Table 1 presents descriptive statistics for cross-sectional data. The sample is restricted to adult foreign-born men, whose ages range from 25 to 64. The average monthly earnings of the total sample is 2627 Dutch guilders. 58 % of the immigrants are employed. The ISEI scale ranges from 16 (agricultural workers; helpers and cleaners in offices, hotels and other establishments) to 88 (medical doctors). The mean occupational status in the cross-sectional sample is 41 (locomotive-engine drivers). An increase of one standard deviation above the mean in the average ISEI scale would be equivalent to working as production and operations managers in wholesale and retail trade, or in transport, storage and communications. A decrease of one standard deviation below the mean would be equivalent to working as building caretakers, gardeners, or garbage collectors. 53 % of the immigrants have a Dutch nationality.[7] The average duration in the Netherlands is 18 years. Up to 69 % of the respondents do not have any education in the Netherlands and only 6 % completed higher education (university) in the Netherlands. 5 % of the respondents work in the primary sector, 28 % work in the secondary sector, 29 % work in the tertiary sector, and the rest 38 % are unemployed. The ethnic concentration is measured in percentages, with an average level of about 5 %.

[TABLE 1 ABOUT HERE]

Table 2 shows that social contacts and Dutch language proficiency vary significantly across the four ethnic groups. In general, Surinamese and Antilleans have more networks developed among Dutch people compared to Turks and Moroccans, either during free time, at work or organisation types. This may be a consequence of Dutch language proficiency. 85 % of Surinamese speak Dutch very well, 72 % for Antilleans, 28 % for Moroccans, while only 20 % of Turks reach this level of proficiency.

[TABLE 2 ABOUT HERE]

Figure 1 shows the average monthly earnings of adult foreign-born men across ethnic groups. All groups show a steady increase in earnings over the years. Moroccans are economically worse off than the other three groups. Antilleans reported the highest earnings in 1991 and 1994, but were later surpassed by Surinamese in 1998 and 2002.

[7] In the Netherlands, it is possible to hold two nationalities. Some of the immigrants still keep their nationalities in the country of origin. The percentages of Dutch nationality holders in the sample are 34 % for Turks and Moroccans, 95 % for Surinamese, and 100 % for Antilleans.

[Figure 1 ABOUT HERE]

4 Empirics

4.1 Identification of earnings assimilation in panel setting

This subsection discusses the econometric specifications for testing immigrant economic assimilation using longitudinal data. The following notation is used: LnE_{it} is the natural logarithm of earnings for immigrant $i = 1, 2, \cdots, N$, in time period t; YSM_{it} is years since migration of i in time t; X_{it} is the individual characteristics that may vary over time, for example, social contact variables and language variables; θ_i is the individual specific effect for immigrant i, including observed characteristics (such as ethnicity), and unobserved heterogeneity; ε_{it} is the residual error.

We follow convention by assuming that the earnings assimilation curve is quadratic in years since migration:

$$LnE_{it} = \alpha + \beta \cdot YSM_i + \gamma \cdot YSM_i^2 + \lambda \cdot X_{it} + \theta_i + \varepsilon_{it}. \tag{1}$$

The intercept α could be interpreted as the logarithm of the benchmark for immigrant group evaluated at $X_i = 0$. It is assumed that our coefficients of interest β, γ and λ do not vary over time. For simplicity, it is assumed that the effect on earnings of education in the Netherlands is captured by the years since migration variable.

Let $\tau = t + T$ where $T > 0$ is the time interval between two longitudinal observations. Let Δ_T denote the difference operator over T periods. Equation 1 implies that in time period τ:

$$LnE_{i\tau} = \alpha + \beta \cdot (YSM_i + T) + \gamma \cdot (YSM_i + T)^2 + \lambda \cdot X_{i\tau} + \theta_i + \varepsilon_{i\tau}. \tag{2}$$

Subtracting Equation 2 from Equation 1 differences away the immigrant specific effect:

$$\Delta_T LnE_i = (\beta T + \gamma T^2) + 2T\gamma \cdot YSM_i + \lambda \cdot \Delta_T X_i + \Delta_T \varepsilon_i. \tag{3}$$

β,γ, and λ are exactly identified in Equation 3. Note the sign of γ determines whether the immigrant earnings increase at an increasing or a decreasing rate with duration in the destination.

The panel data sample is created with a time interval of $T \approx 4$ years between the first and the second time of the survey, making it possible for us to estimate Equation 3. The variable X_i include the social capital variables (*Contact composition during free time, contact composition at work*, and *organisation membership*) and Dutch language proficiency variable discussed in subsection 3.2. The longitudinal regression analysis would be concerned with the level changes in social contacts and Dutch language proficiency between two time periods.

4.2 Cross section analyses

The empirics begin with a cross-section regression analysis for adult foreign-born men in the Netherlands. Table 3 presents the regression estimates for earnings, employment and occupational status. Column (1) is the OLS earnings regression (Mincer, 1974) incorporated with YSM variables (Chiswick, 1978). The dependent variable is the natural logarithm of earnings. The sample includes employed men reporting positive or non-zero labour market earnings. Column (2) is a logistic regression model and the dependent variable is a dichotomous variable for being employed or not. The sample includes those who reported 'working regularly' or 'unemployed/search for jobs'. Column (3) is an OLS estimation for occupational status, with ISEI being the dependent variable. The sample includes employed respondents with reported occupations. All the standard errors are clustered on respondent ID, given the fact that some respondents appear more than once in the pooled cross-sectional data.

[TABLE 3 ABOUT HERE]

In column (1) of Table 3 on earnings, the coefficients for all social contact variables are statistically insignificant. Dutch language proficiency turns out to be an important factor in increasing earnings. Respondents who speak Dutch very well earn around 6 % more than those who have no mastery of the Dutch language. This effect is smaller than the effect of language proficiency found elsewhere in other destination countries. In addition, higher earnings are associated with more schooling in the Netherlands. There is no significant difference in earnings among the four immigrant groups.

In column (2) of Table 3 on employment, the effects of social contacts and Dutch language proficiency on the probability of employment are interpreted using the odds ratio. The odds

ratio is expected to change by $\exp(b_i\delta)$ for a change of δ in variable x_i, ceteris paribus.

$$\frac{Pr(Employed = 1|X = \{x_i + \delta, x_{-i}\})}{Pr(Employed = 1|X = \{x_i, x_{-i}\})} = \exp(b_i\delta), \tag{4}$$

where b_i is the estimated coefficient for variable x_i in the logistic regression model. The odds ratio is 1.31 times greater for a change from 'more contact with co-ethnics' to 'equal contacts with Dutch and co-ethnics' in the ethnic composition. The odds ratio is 2.26 times greater for a change from 'speak no Dutch' to 'speak Dutch very well'. Surinamese and Antilleans have higher employment rates than Turks and Moroccans.[8]

In column (3) of Table 3, ethnic organisation membership and Dutch organisation membership are both associated with a higher occupational status. The occupational status is positively associated with education level. The negative coefficient for YSM (although not statistically significant) and the significant positive coefficient for YSM squared suggest that the International Socio-Economic Index rises at an increasing rate with duration in the Netherlands.[9]

4.3 Panel data analyses on earnings

Table 4 presents the longitudinal regression analysis of earnings for adult foreign-born men in the Netherlands. The dependent variable is the difference between the natural logarithm of earnings adjusted for inflation in time 2 and time 1. Column (1) 'All' is the estimation for the whole sample. In column (1), contrary to the cross-sectional findings, it is found that the coefficients for social contacts are statistically significant. Co-ethnic contact during free time compared to Dutch contact (16 %), equal contact compared to co-ethnic contact at work (17 %) and Dutch language proficiency compared to not speaking Dutch (15 %) all lead to an increase in earnings.[10] The effect of network differs by the context. If an immigrant allocates more time

[8] This is consistent with the finding in Zorlu and Hartog (2012).

[9] Zorlu (2013) shows that labour market adjustment of immigrants in the Netherlands runs through inter-occupational job mobility, rather than intra-occupational mobility, while the focus is put more on the initial disadvantage upon arrival and the rate of adjustment (including interval categories for YSM as the explanatory variable, but not quadratic terms of YSM) in later years.

[10] Yao and Van Ours (2015) analyses the effect of Dutch language proficiency on the wages of adult male immigrants in the Netherlands from all countries of origin. Although the sample is relatively small for a microdata analysis of male earnings (407 observations), those who are proficient in Dutch (measured by a dichotomous variable) earn about 14 percent more than those lacking proficiency, which is marginally significant (t=1.91). This magnitude is comparable to what is found in this study and in studies of other countries. Using an IV approach to identify Dutch proficiency, Yao and Van Ours found the coefficient declines to 9.4 percent, but the standard error increases sharply (t=0.49). Presumably because of the difficulty of finding appropriate identifying instruments,

in co-ethnic contact during free time or some contact at work with Dutch people compared to only co-ethnics, this would yields returns to earnings. These confirm our hypotheses H_1, H_5, H_6 about earnings.

[TABLE 4 ABOUT HERE]

Column (2) of Table 4 'T&M' is the estimation for the Mediterranean group (Turks and Moroccans), and column (3) of Table 4 'S&A' is the estimation for the Caribbean group (Surinamese and Antilleans). The Mediterranean group is predominantly of Muslim origin and its linguistic distance from the Dutch is great. The Caribbean group, however, is close to the Dutch society concerning religious and cultural characteristics due to a colonial history. Column (2) shows that co-ethnic contact compared to equal contact (14 %), some contact with Dutch people at work (17 %), and Dutch language proficiency (15 %) all lead to an increase in earnings for the Mediterranean group, while the effect is much lower for the Caribbean group. As shown in equation 3, solving $\beta T + \gamma T^2 = 0.204, 2T\gamma = -0.011$ yields $\beta = 0.057$ and $\gamma = -0.0014$ (Table 4, column 2). The earnings of the Mediterranean group increases at a decreasing rate with duration.

Column (4) of Table 4 'No NL Edu.' is the estimation for immigrants who completed their education in the country of origin, and column (5) of Table 4 'NL Edu.' is the estimation for immigrants who completed education in the Netherlands. Comparing column (4) and column (5), the effects of social contacts (15 % for 'more contact with Dutch at work') and Dutch language proficiency (19 %) on earnings of immigrants who completed their education in the country of origin are stronger than that for immigrants who completed their education in the Netherlands. Solving $\beta T + \gamma T^2 = 0.196, 2T\gamma = -0.009$ yields $\beta = 0.054$ and $\gamma = -0.0011$ (Table 4, column 4), and solving $\beta T + \gamma T^2 = -0.238, 2T\gamma = 0.017$ yields $\beta = -0.068$ and $\gamma = 0.0022$ (Table 4, column 5). The earnings of those without a Dutch diploma increases at a decreasing rate with duration. However, the earnings of Dutch diploma holders increases with duration only for those who have migrated over 30 years. The result might be heavily induced by many immigrants who migrated at a very young age. The initial years of duration does not contribute to earnings directly but via schooling in the Netherlands.

Column (6) of Table 4 'AAM>18' is the estimation for immigrants whose age at migration (AAM) is older than 18, and column (7) of Table 4 'AAM≤18' is the estimation for immigrants

other studies using the IV technique to study the relation between earnings and proficiency also found a large increase in the standard error compared to an OLS analysis. For a discussion of this issue, see Chiswick and Miller (1995).

whose age at migration (AAM) is younger than 18. Comparing column (6) and column (7), co-ethnic contact during free time (22 %), Dutch contact at work (23 %), and Dutch language proficiency (19 %) all increase earnings for immigrants who migrate at an older age, while only the coefficient for Dutch organisation membership is positively significant in column (4). The effects of social contacts and Dutch language proficiency on earnings of immigrants who migrate at an older age are also slightly stronger than that for immigrants who migrate at a younger age.

Above all, we have done regressions for three pairs of (low-skill-transferability versus high-skill-transferability) subgroups: the Mediterranean versus the Caribbean; immigrants' education completed in the country of origin versus education completed in the Netherlands; age at migration older than 18 versus age at migration younger than 18. We consistently found that low-skill-transferability immigrants benefit more from social contacts and especially from Dutch language proficiency in earnings than high-skill-transferability immigrants, thus confirming hypothesis H_2 about earnings.

Column (8) of Table 4 'Econ' is the estimation for the economic migrants, and column (9) of Table 4 'Non-Econ' is the estimation for the non-economic migrants. Column (8) shows that the statistically significant contact with Dutch people at work (31 %) and Dutch language proficiency (24 %) both lead to an increase in earnings of economic migrants. However, among non-economic migrants, only the coefficient for Dutch organisation membership is statistically significant (16 %). This confirms our hypothesis H_3 on the effects on earnings of motives for migrating.

4.4 Panel data analyses on employment

Appendix Table A2 presents the random effects logistic regression results of employment for adult foreign-born men in the Netherlands. The random effects logit model is a maximum likelihood solution where the parameters are estimated through a weighted combination of within and between individual covariances. The dependent variable is a dichotomous variable for being employed or not. Column (1) 'All' is the estimation for the whole sample. σ is the estimated random effects' standard deviation. The significance of σ implies that there is random effect. Similar with cross-sectional findings in Table 3, Dutch contact greatly enhances the probability of being employed. In column (1), participating in a Dutch organisation is significantly associated with a higher probability of being employed, and the odds ratio is 4.93 times higher. The odds ratio is 1.76 times greater for a change from 'do not speak Dutch'

to 'Dutch: not very well', and is 3.06 times greater for a change from 'do not speak Dutch' to 'Dutch: very well'. Social contacts and Dutch language proficiency turn out to increase the likelihood of employment, especially contact with Dutch people. Co-ethnic contact does not seem to have any positive effect on employment. These confirm the hypotheses H_1, H_5, H_6 about employment.

Column (2) of Table A2 'T&M' is the estimation for the Mediterranean group (Turks and Moroccans), and column (3) of Table A2 'S&A' is the estimation for the Caribbean group (Surinamese and Antilleans). Only the Mediterranean group has a higher probability of being employed with more Dutch contact, and a higher level of Dutch language proficiency. Social contacts and Dutch language proficiency do not have these positive effects for the Caribbean group, perhaps because they are highly adjusted to Dutch culture and language at immigration.

Column (4) of Table A2 'No NL Edu.' is the estimation for immigrants who completed their education in the country of origin, and column (5) of Table A2 'NL Edu.' is the estimation for immigrants who completed education in the Netherlands. In column (4), participating in a Dutch organisation is significantly associated with a higher probability of being employed for immigrants who completed their education in the country of origin, and the odds ratio is 9.97 times higher. The odds ratio is 1.74 times greater for a change from 'do not speak Dutch' to 'Dutch: not very well', and is 2.24 times greater for a change from 'do not speak Dutch' to 'Dutch: very well'. However in column (5), none of the coefficients for social contacts and Dutch language proficiency are significant for immigrants who completed their education in the Netherlands.

Column (6) of Table A2 'AAM>18' is the estimation for immigrants whose age at migration (AAM) is older than 18, and column (7) of Table A2 'AAM≤18' is the estimation for immigrants whose age at migration (AAM) is younger than 18. Comparing these two columns, the coefficients for Dutch organisation membership and Dutch language proficiency are positively significant for immigrants who migrated at older age, while only the coefficient for language variable is positively significant for immigrants who migrated at younger age.

Above all, we have compared the three pairs (low-skill-transferability versus high-skill-transferability) of subgroups: the Mediterranean versus the Caribbean; education completed in the country of origin versus education completed in the Netherlands; age at migration older than 18 versus age at migration younger than 18. We consistently found that low-skill-transferability immigrants benefit more in terms of employment from social contacts and Dutch language

proficiency than high-skill-transferability immigrants, thus confirming hypothesis H_2 about employment.

Column (8) and (9) of Table A2 report the random effects regression results separately for economic and non-economic migrants. Participating in a Dutch organisation is significantly associated with higher probability of employment for economic migrants, and the odds ratio is 11.99 times higher. The odds ratio is 2.49 times greater for a change from 'do not speak Dutch' to 'Dutch: not very well'. However, the effect of language is much less for non-economic migrants. This confirms our hypothesis H_3 about employment.

4.5 Panel data analyses on occupational status

The fixed effects estimation on occupational status for adult foreign-born men in the Netherlands is reported in Table A3. The dependent variable is the International Socio-Economic Index (ISEI). The model eliminates unobserved heterogeneity by using deviations from the means of the variables, and hence the time-invariant variables, such as ethnicity, are eliminated. Column (1) is the estimation for the whole sample. Column (2) is the estimation for immigrants who are blue-collar workers, and column (3) is the estimation for immigrants who are white-collar workers. In column (1), it is found that both co-ethnic contact and contact with Dutch people are useful for occupational upward mobility. This confirms the hypotheses H_5 and H_6 about occupational status. Comparing column (2) and column (3), we do not find any significant effect of social contacts on occupational status in blue-collar jobs. In white collar-jobs, however, co-ethnic contact and some contact with Dutch people compared to only co-ethnics increases the occupational status. This confirms our hypothesis H_4.

5 Robustness Checks

In this section, we mainly discuss three issues: endogeneity of Dutch language proficiency; selectivity of panel respondents in cross-sectional data; and the possible reverse causality between earnings and social contact variables.

First, the problem of measuring the causal impact of Dutch language ability on earnings is complicated by the fact that workers fluent in Dutch language earn more for reasons other than language skills. Therefore we resort to an instrumental variable strategy using an interac-

tion term between age at migration and a dummy for non-Dutch-speaking (NDS) country as the identifying instrument (Bleakley, 2004). The idea is that upon arrival in the Netherlands, immigrants originating from Dutch-speaking countries encounter everything that the immigrants from non-Dutch-speaking countries except a new language. Any difference in wages between young and old arrivers in non-Duthc-speaking countries that is different from the wage difference in Dutch-speaking countries can plausibly be attributed to Dutch language ability. Figure 2 shows the relationship between age at migration and Dutch language ability. Children with early exposure to Dutch language attain higher levels of Dutch language ability. For early arrivers (before the age of 5), the Dutch language ability of immigrants from non-Dutch-speaking countries is comparable to that of immigrants from Dutch-speaking countries. However, there tends to be a significant difference in Dutch language ability for late arrivers.

[FIGURE 2 ABOUT HERE]

Table 5 briefly shows an IV estimation to measure the causal impact of Dutch language ability on the earnings of foreign-born men who migrated before age 40.[11] We use the instrument $\max(0, AAM - 5) * NDS$ to capture the fact the difference in future language ability starts to appear at around age 5. In the first stage in column (1), the estimate for the instrumental variable is significantly negative, showing a degradation in language-learning ability. In the second stage in column (2), the estimate for Dutch language ability is significantly positive, implying the importance of Dutch language ability for labour market performances.

[TABLE 5 ABOUT HERE]

Second, it should be noted that this Dutch survey was not originally set up as a longitudinal study and hence the level of attrition is rather high. Around 80 % agree to take part in the next wave, but only 20 % actually realise the re-interview. The interviewers did not trace the respondents who move in the period between the two surveys. We also checked the descriptive statistics for the pooled panel data, both at the first and the second time of measurement. They do not differ greatly from Table 1 and Table 2.[12] To further check whether these respondents

[11] For those who migrated above age 40, there are mainly two cases. Immigrants from Dutch-speaking countries are already very fluent in Dutch language; immigrants from non-Dutch-speaking countries cannot speak Dutch at all, and they do not seem to further acquire local language anymore. The instrument will work the best when there is a linear degradation in language acquisition over years since migration.

[12] The descriptive tables for the pooled panel data are available on request.

are selective, we apply Heckman selection model. In the first step, a probit regression is run to predict the participation of respondents in the panel sample. Apart from all the control variables, the dummy for living in a rented house is added. The coefficient is significantly negative, implying that the respondents who live in a rented house are less likely to participate in the next wave compared to those who own a house. The intuition is that respondents renting a house have higher probabilities of changing address by returning to their country of origin or moving elsewhere in the Netherlands. In the second step, the outcome regression is run controlling for the selectivity coefficient obtained in the first step.

The Heckman selectivity correction models for earnings, employment and occupational status are reported in Appendix Table A4. The inverse Mills' ratio reported in the last row of each column is not significant in any of the specifications, implying that there is no selection bias. This result validates the empirical analysis for the panel data.

Third, apart from utilising the longitudinal approach to tackle the endogeneity problem, we further study the causal relationship between social contacts and earnings by including in the model lagged measures of social contacts and Dutch language proficiency, (Appendix Table A5). In our panel data sample, these lagged variables are 3 to 4 years prior to the measured earnings.

Although the lagged contact variables during free time and at work are not statistically significant, lagged variables for ethnic organisation membership, Dutch organisation membership and the ethnic concentration all have significant positive effects in earnings. The ethnic organisation membership effect (15 %) is larger and more highly significant than the effect of Dutch organization membership (11 %). The lagged language variables are not statistically significant implying that recently acquired language skills have the bigger impact on earnings, as it is unlikely that higher earnings increases a worker's Dutch language skills.

6 Main Conclusions and Discussion

This paper studies the effects of social contacts and Dutch language proficiency on the adult foreign-born men's labour market performances in the Netherlands, using four large cross-section samples from year 1991 to 2002, together with a constructed panel dataset. It is found that social contacts and Dutch language proficiency have positive impacts on labour market outcomes (mainly employment and earnings). But the strength of the effects varies by the

degree of the transferability of their pre-migration skills and their motivation for migration (economic or non-economic).

There are several important findings. First, the Mediterranean group (Turks and Moroccans) benefits much more from social contacts and Dutch language proficiency in their economic performance than the Caribbean group (Surinamese and Antilleans). For example, the Mediterranean immigrants who speak Dutch well earn 15 % more than those who do not speak Dutch at all. For Turks and Moroccans, two economically disadvantaged groups with lower education levels, contact with Dutch people turns out to be of great use in job-related activity. Surinamese and Antilleans' earnings are quite invariant to changes in social contacts and Dutch language proficiency. Surinamese and Antilleans, as two immigrant groups that are closer to Dutch culture and language due to colonial ties, their pre-migration contacts with Dutch were rather frequent. The marginal effect of contact with Dutch people in the Netherlands is not that important for them.

Second, immigrants who completed their education in the country of origin benefit more from social contacts and Dutch language proficiency in their economic performances than immigrants who had some years of schooling in the Netherlands. In the former group, immigrants who report more contact with Dutch at work earn 15 % more than those who have more co-ethnic contact at work, *ceteris paribus*. Certain qualifications in the Netherlands are useful to get a job or a promotion at work. Immigrants who completed their education in the country of origin lack the destination-specific exposure, and hence social contacts provide more information for them to familiarize with the local labour market.

Third, immigrants who migrated at an older age have a larger partial effect from social contacts and Dutch language proficiency in their economic performances than immigrants who migrated at a younger age. The older age an immigrant migrates, the less transferable is his skill to the destination. Younger migrants have accumulated more destination-specific qualifications and mostly speak fluent Dutch. Therefore they are more competitive in job market than those who migrated at an older age.

Fourth, social contacts and Dutch language proficiency have larger impacts on the economic outcomes of economic migrants than non-economic migrants. Economic migrants make better use of social contacts and Dutch language proficiency to obtain economic benefits. For example, *ceteris paribus*, contact with Dutch at work and having a good mastery of Dutch yield 31 % and 24 % increases in earnings, respectively, while they do not have any significant effects on non-economic migrants' earnings.

Fifth, social contacts and Dutch language proficiency also enhance occupational status, but only for white-collar jobs. Contact with Dutch people is found to be consistently positive in increasing all labour market outcomes (earnings, employment and occupational status), but co-ethnic contact does not increase the likelihood of employment among immigrants.

This study demonstrates the importance of social contacts and the distinction between contacts among co-ethnics and with the host population, and Dutch language proficiency on immigrant economic outcomes. As a result, the study provides insights for the Netherlands, and the European Union more broadly, on programs to enhance the integration of immigrants by the government, immigrant ethnic communities and the immigrants themselves.[13] A greater scope may involve mixed neighbourhood housing, which facilitates communications between the immigrants and the natives. A greater emphasis on Dutch language proficiency would enhance their earnings directly and enhance their earnings indirectly by facilitating contact with Dutch people during their free time, at work and through participating in Dutch organisations.

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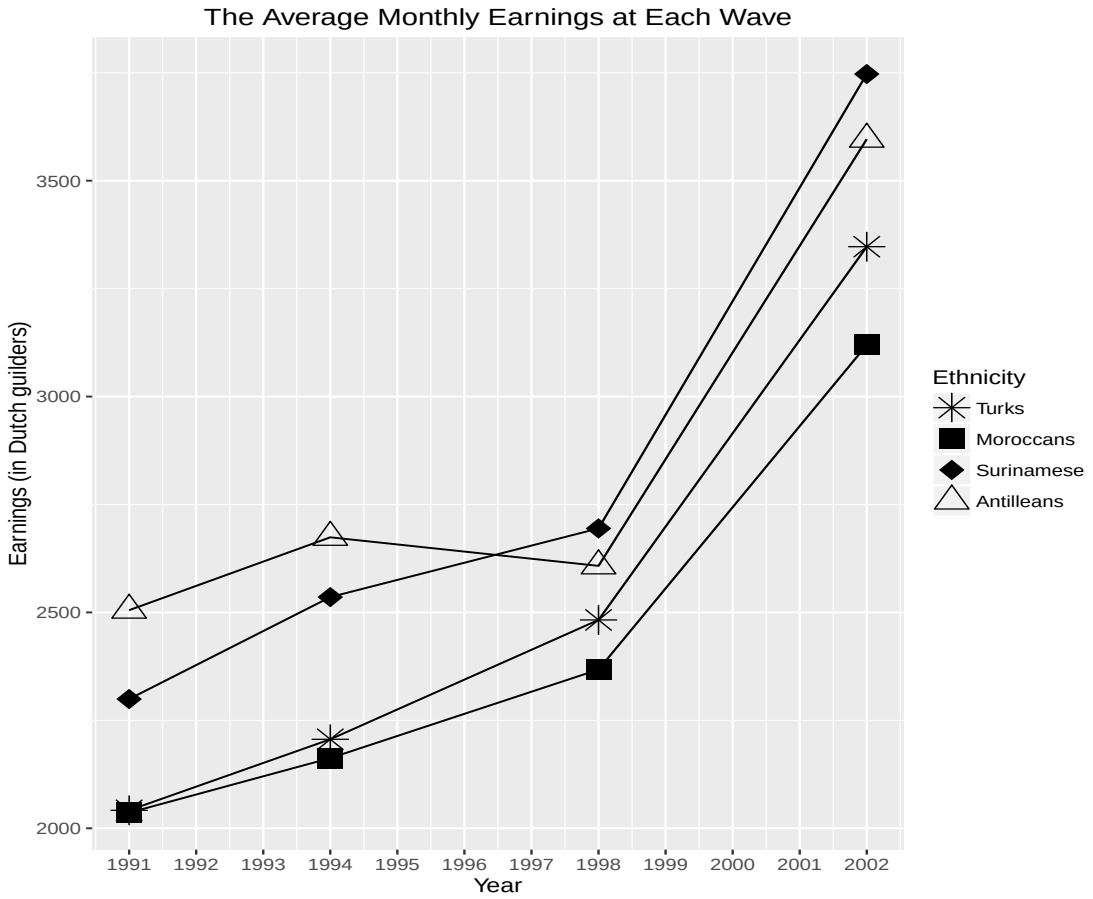

Figure 1: The Average Monthly Earnings of Adult Foreign-Born Men in Each Wave

Source: SPVA 1991, 1994, 1998, 2002.

Note: In 2002, the currency changed from Dutch guilders to Euros. The exchange ratio 2.2:1 is used to unify the monetary unit across four waves. Earnings shown in this figure is not adjusted for inflation.

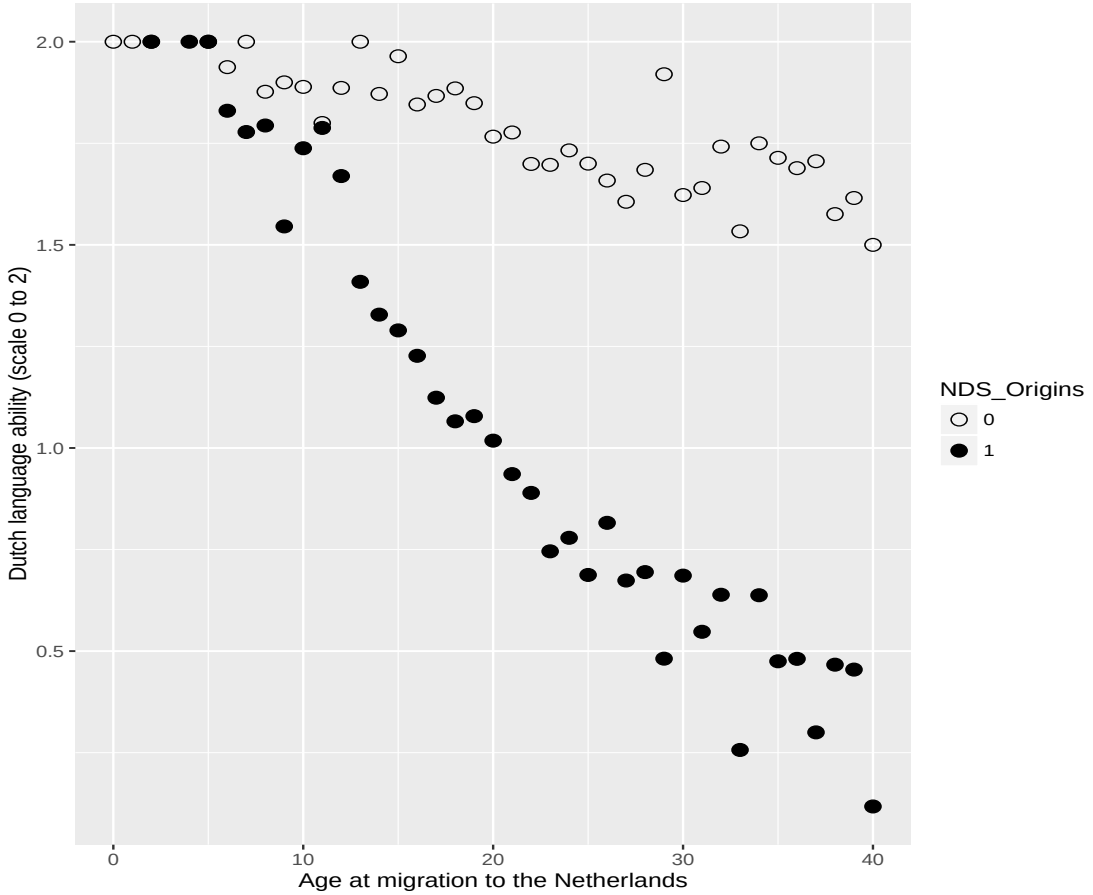

Figure 2: Dutch Speaking Ability by Age At Migration

Source: SPVA 1991, 1994, 1998, 2002.

Note: NDS_Origins means non-Dutch-speaking origin countries.

Table 1: Descriptive Statistics for Cross-Sectional Data, Adult Foreign-Born Men

Statistic	N	Mean	St. Dev.	Min	Max
Earnings (in Dutch guilders)	4,618	2,627.09	1,137.78	9.00	21,989.00
Employed now	8,913	0.58	0.49	0	1
Occupational status	3,323	40.51	17.77	16	88
Age	8,920	41.04	10.51	25	64
Turks	8,920	0.35	0.48	0	1
Moroccans	8,920	0.34	0.47	0	1
Surinamese	8,920	0.19	0.39	0	1
Antilleans	8,920	0.12	0.32	0	1
Dutch nationality	8,920	0.53	0.50	0	1
YSM (in years)	8,792	18.04	8.94	0.00	52.50
Married	8,920	0.82	0.38	0	1
Number of children	8,920	2.63	2.34	0	17
Motive: study	8,920	0.11	0.31	0	1
Motive: family	8,920	0.31	0.46	0	1
Motive: work	8,920	0.43	0.50	0	1
Motive: others	8,920	0.15	0.36	0	1
No edu. in OC	8,698	0.33	0.47	0	1
Primary edu. in OC	8,698	0.35	0.48	0	1
Lower edu. in OC	8,698	0.16	0.37	0	1
Intermed. edu. in OC	8,698	0.13	0.33	0	1
Higher edu. in OC	8,698	0.03	0.17	0	1
No edu. in NL	8,581	0.69	0.46	0	1
Primary edu. in NL	8,581	0.10	0.29	0	1
Lower edu. in NL	8,581	0.08	0.28	0	1
Intermed. edu. in NL	8,581	0.07	0.26	0	1
Higher edu. in NL	8,581	0.06	0.23	0	1
Exp. in OC (in years)	8,531	4.85	3.29	0.00	21.36
Exp. in NL (in years)	8,833	12.17	8.56	0.00	48.00
Work in primary sector	8,920	0.05	0.22	0	1
Work in secondary sector	8,920	0.28	0.45	0	1
Work in tertiary sector	8,920	0.29	0.45	0	1
Contract working hours	5,025	37.92	7.25	0	96
Ethnic concentration	6,938	4.78	2.52	0.26	9.73

Respondents are those reported as the household head by the household members.
Earnings are measured as monthly labour market income.
Earnings are not adjusted for inflation.
Occupational status is measured in terms of the International Socio-Economic Index (ISEI).
The means of working sector variables do not sum up to 1 because of 'N.A.' option.
Contract working hours are measured per week.
Ethnic concentration is measured in percentages.
Source: SPVA 1991, 1994, 1998, 2002.

Table 2: Descriptive Statistics of Social Contacts and Dutch Language Proficiency across Ethnicity for Cross-Sectional Data, Adult Foreign-Born Men

	Turks	Moroccans	Surinamese	Antilleans
During free time: more contact with co-ethnics	0.48	0.29	0.29	0.19
During free time: equal contacts	0.19	0.28	0.40	0.33
During free time: more contact with Dutch	0.07	0.07	0.18	0.38
At work: more contact with co-ethnics	0.08	0.06	0.03	0.03
At work: equal contacts	0.23	0.22	0.19	0.09
At work: more contact with Dutch	0.22	0.19	0.48	0.56
No membership	0.77	0.83	0.65	0.64
Ethnic org. membership	0.16	0.10	0.17	0.08
Dutch org. membership	0.08	0.06	0.18	0.29
Do not speak Dutch	0.38	0.29	0.03	0.04
Dutch: not very well	0.42	0.43	0.12	0.23
Dutch: very well	0.20	0.28	0.85	0.72

The social contacts and language variables are dichotomous with a value of either 0 or 1. The figures in the table are the percentage of respondents in the total sample that fit the description of the first column within each ethnic group.
Sample size: 13023.
Source: SPVA 1991, 1994, 1998, 2002.

Table 3: Cross-Section Regression Analysis of Earnings, Employment and Occupational Status, Adult Foreign-Born Men

	Earnings	Employment	ISEI
Constant	5.178 (0.182)***	−0.068 (0.348)	57.151 (2.373)***
Social Contacts			
Free time: equal contact	−0.020 (0.025)	0.273 (0.123)**	0.631 (0.680)
Free time: more with Dutch	−0.045 (0.036)	0.187 (0.180)	−1.423 (0.952)
At work: equal contact	0.008 (0.023)		−1.082 (1.055)
At work: more with Dutch	0.015 (0.023)		1.072 (1.071)
Ethnic org. membership	0.019 (0.023)	0.107 (0.122)	1.653 (0.685)**
Dutch org. membership	0.039 (0.036)	0.263 (0.172)	2.505 (0.804)***
Human Capital			
Dutch: not very well	−0.015 (0.020)	0.277 (0.112)**	−0.171 (0.678)
Dutch: very well	0.060 (0.019)*	0.815 (0.139)***	1.044 (0.792)
Primary edu. in OC	−0.007 (0.023)	−0.048 (0.106)	−1.270 (0.588)*
Lower edu. in OC	−0.010 (0.034)	−0.039 (0.154)	0.097 (0.757)
Intermed. edu. in OC	0.055 (0.039)	−0.003 (0.155)	1.933 (0.867)**
Higher edu. in OC	0.099 (0.085)*	0.139 (0.270)	9.547 (2.025)***
Primary edu. in NL	−0.002 (0.030)	0.053 (0.138)	2.395 (0.862)***
Lower edu. in NL	0.065 (0.026)*	0.477 (0.193)***	0.177 (0.826)
Intermed. edu. in NL	0.088 (0.037)**	0.979 (0.245)***	4.890 (1.059)***
Higher edu. in NL	0.168 (0.062)***	2.145 (0.370)***	18.946 (1.335)***
Exp. in NL	0.007 (0.005)	0.282 (0.023)***	0.224 (0.136)*
Exp. in OC	−0.002 (0.008)	−0.229 (0.042)***	−0.452 (0.265)*
Exp. in NL squared/100	−0.006 (0.018)	−0.283 (0.069)***	−0.889 (0.398)**
Exp. in OC squared/100	0.021 (0.051)	0.599 (0.291)**	3.100 (2.166)*
Control Variables			
Moroccans	−0.026 (0.019)	−0.218 (0.108)**	−1.719 (0.617)**
Surinamese	−0.023 (0.038)	1.007 (0.181)***	0.603 (0.898)
Antilleans	0.048 (0.045)	0.984 (0.230)***	0.527 (1.120)
Dutch nationality	−0.004 (0.018)	0.101 (0.107)	0.275 (0.560)
YSM	0.006 (0.010)	−0.158 (0.024)***	−0.236 (0.144)
YSM squared/100	−0.012 (0.030)	−0.048 (0.061)	0.979 (0.367)***
Married	0.060 (0.030)**	0.786 (0.128)***	−0.499 (0.743)
Number of children	0.007 (0.008)	−0.062 (0.026)**	0.202 (0.170)
Inflation factor	1.495 (0.093)***		
Contract working hours	0.014 (0.002)***		
Ethnic concentration	0.010 (0.006)*	0.035 (0.030)	0.184 (0.151)
R^2	0.144		0.480
Adj. R^2	0.131		0.471
Num. obs.	3160	4715	2990
Log Likelihood		-1773.689	

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Standard errors in the parentheses are clustered on respondent ID.

The dependent variable of column (1) is the natural logarithm of earnings. Column (2) is estimated using a logistic regression model. The dependent variable of column (3) is the International Socio-Economic Index.

The reference for each categorical variable is as follows. Contact composition during free time: more contact with co-ethnics. Contact composition at work: more contact with co-ethnics. Organisation membership: no membership. Dutch proficiency: do not speak Dutch or find it very difficult. Education in OC: no education. Education in NL: no education. Ethnicity: Turks.

The inflation factor is the Consumer Price Index (CPI) in year 1991, 1994, 1998 and 2002.

Year effect, city effect and sector effect are controlled in the regressions.

The variance inflation factors for social contact variables and language proficiency variable are all smaller than 4, implying no multicollinearity problem.

Table 4: Longitudinal Regression Analysis of Earnings, Adult Foreign-Born Men, All Sample Estimation, and Groups by Ethnicity, Education, Age At Migration and Migration Motives

	All	T&M	S&A	No NL Edu.	NL Edu.	AAM>18	AAM≤18	Econ	Non-Econ
Constant	0.091	0.204***	−0.035	0.196***	−0.238	0.152*	−0.063	0.213	−0.045
	(0.076)	(0.069)	(0.157)	(0.058)	(0.199)	(0.089)	(0.162)	(0.144)	(0.072)
YSM	−0.001	−0.011***	0.008	−0.009***	0.017*	−0.006	0.010	−0.009	0.009**
	(0.004)	(0.004)	(0.007)	(0.003)	(0.009)	(0.005)	(0.008)	(0.007)	(0.004)
Free time: equal contact	−0.086	−0.137**	−0.101	−0.071	−0.255	−0.131	−0.003	−0.109	−0.053
	(0.071)	(0.063)	(0.137)	(0.054)	(0.169)	(0.088)	(0.116)	(0.130)	(0.065)
Free time: more with Dutch	−0.159*	0.107	−0.376**	0.094	−0.416**	−0.220**	−0.061	−0.224	−0.056
	(0.090)	(0.086)	(0.166)	(0.073)	(0.206)	(0.110)	(0.164)	(0.154)	(0.091)
At work: equal contact	0.167**	0.165**	0.091	0.171***	0.164	0.228**	−0.030	0.310**	0.008
	(0.085)	(0.068)	(0.195)	(0.066)	(0.210)	(0.107)	(0.137)	(0.144)	(0.085)
At work: more with Dutch	0.115	0.113	0.030	0.153**	0.011	0.155	−0.006	0.188	0.007
	(0.083)	(0.073)	(0.168)	(0.068)	(0.183)	(0.105)	(0.132)	(0.143)	(0.081)
Ethnic org. membership	−0.036	−0.049	0.038	−0.035	0.056	−0.063	0.012	−0.136	0.058
	(0.085)	(0.068)	(0.185)	(0.060)	(0.270)	(0.096)	(0.210)	(0.159)	(0.078)
Dutch org. membership	0.055	−0.001	0.075	0.065	0.114	−0.063	0.269**	−0.091	0.159**
	(0.079)	(0.092)	(0.124)	(0.064)	(0.165)	(0.103)	(0.123)	(0.145)	(0.073)
Dutch: not very well	−0.059	−0.019	−0.063	−0.026	−0.019	−0.064	−0.027	−0.096	−0.010
	(0.041)	(0.040)	(0.101)	(0.031)	(0.118)	(0.050)	(0.073)	(0.070)	(0.040)
Dutch: very well	0.155**	0.147**	0.116	0.190***	0.100	0.194**	0.145	0.240*	0.100
	(0.072)	(0.063)	(0.139)	(0.056)	(0.161)	(0.092)	(0.111)	(0.127)	(0.069)
R^2	0.030	0.133	0.041	0.113	0.064	0.046	0.068	0.057	0.064
Adj. R^2	0.006	0.091	-0.009	0.078	-0.010	0.014	-0.017	0.011	0.017
Num. obs.	468	244	224	296	152	335	133	238	230

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Standard errors are in the parentheses.

The dependent variable is the difference between the natural logarithm of earnings adjusted for inflation in time 2 and time 1.

Column (1) 'All' is the estimation for the whole sample. Column (2) 'T&M' is the estimation for the Mediterranean group (Turks and Moroccans), and column (3) 'S&A' is the estimation for the Caribbean group (Surinamese and Antilleans). Column (4) 'No NL Edu.' is the estimation for immigrants who completed their education in the country of origin, and column (5) 'NL Edu.' is the estimation for immigrants who completed education in the Netherlands. Column (6) 'AAM>18' is the estimation for immigrants whose age at migration (AAM) is older than 18, and column (7) 'AAM≤18' is the estimation for immigrants whose age at migration (AAM) is younger than 18. Column (8) 'Econ' is the estimation for the economic migrants, and column (9) 'Non-Econ' is the estimation for the non-economic migrants.

The reference for each categorical variable is as follows. Contact composition during free time: more contact with co-ethnics. Contact composition at work: more contact with co-ethnics. Organisation membership: no membership. Dutch proficiency: do not speak Dutch or find it very difficult. Education in OC: no education. Education in NL: no education. Ethnicity: Turks.

The variance inflation factors for social contact variables and language proficiency variable are all smaller than 4, implying no multicollinearity problem.

Table 5: 2SLS Estimation of Dutch Language Ability on Earnings, Adult Foreign-Born Men Who Migrated before Age 40

	1st Stage	2SLS
Dependent Var.	Dutch language ability	Log(Earnings)
$\max(0, AAM-5) * NDS$	-0.022***	
	(0.003)	
Dutch language ability (0-2)		0.459**
		(0.164)
Individuals	3530	3216
F-statistics	68.89	
Wald test		10.42
Weak instrument		Reject
Wu-Hausman test		Reject

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Standard errors are in the parentheses.

Dutch language ability is measured in a scale of 0 to 2.

Appendix

Table A1: The Definitions and Coding of the Variables in 'Social Position and Use of Public Facilities by Immigrants' (SPVA)

Variables	**Questions asked in the survey and coding**
Earnings	'What is your net monthly income from employment?' In year 2002, the currency changed from Dutch guilders to Euros. The exchange ratio 2.2:1 is used to unify the monetary unit across four waves.
Employed now	'Do you have a paid job at the moment?' 0-No; 1-Yes.
Occupations	'What kind of work are you doing at the moment?' The answers are coded either as International Standard Classification of Occupations (ISCO-88) or Standaard Beroepenclassificatie 1992 (SBC 1992) in Dutch code.
Contract working hours	'How many hours do you work according to your employment contract?'
Education in OC	'What is the highest degree you have completed in your country of origin?' 0-No degree; 1-Degree in primary education (LO); 2-Degree in secondary education (LBO/MAVO); 3-Degree in intermediate education (MBO/HAVO/VWO); 4-Degree in higher education (HBO/WO). This question was originally asked in the survey as the degree completed outside Netherlands. Since pre-migration human capital is not the main focus of this paper, we assume most of the schooling is completed in the country of origin.
Education in NL	'What is the highest degree you have completed in the Netherlands?' 0-No degree; 1-Degree in primary education (LO); 2-Degree in secondary education (LBO/MAVO);

Continued on next page

Table A1 – continued from previous page

Variables	Questions asked in the survey and coding
	3-Degree in intermediate education (MBO/HAVO/VWO); 4-Degree in higher education (HBO/WO).
Work experience in OC	'How long have you been in paid work in total in country of origin?' This question was asked only in the 1991 questionnaires. To supplement this variable in the other three waves, we regress reported 1991 work experience in OC on individual background characteristics (gender, age, years since migration, total education, etc) and predict values for the other three waves.
Work experience in NL	'How long have you worked in total in the Netherlands?'
Dutch language proficiency	'When you are in a conversation, do you have any difficulty in using Dutch language?' 0-Yes, very difficult/ do not speak Dutch at all; 1-Yes, sometimes; 2-No, never.
Contact composition during free time	'In your spare time, do you have more contact with Dutch people or do you have more contact with people from your own ethnic group?' 1-More co-ethnic contact; 2-Both equally; 3-More contact with Dutch people.
Contact composition at work	'At work, do you have more contact with Dutch people or do you have more contact with people from your own ethnic group?' 1-More co-ethnic contact; 2-Both equally; 3-More contact with Dutch people. This variable is not recorded in 2002. Similar with what has been done for work experience in OC, we use the regression technique to predict this variable in 2002.
Organisation membership	Q1: 'Are you a member of an association or club?'

Continued on next page

Table A1 – continued from previous page

Variables	Questions asked in the survey and coding
	0-No; 1-Yes. Q2: 'Are there many, few or almost no co-ethnic members of these associations?' 0-Almost no; 1-Few; 2-Many.
Ethnicity	'What is your ethnic group?' 1-Turks; 2-Moroccans; 3-Surinamese; 4-Antilleans.
Municipality	Registered residence municipality 1-Amsterdam; 2-Rotterdam; 3-Den Haag; 4-Utrecht; 5-Eindhoven; 6-Enschede; 7-Almere; 8-Alphen aan den Rijn; 9-Bergen op Zoom; 10-Hoogezand-Sappemeer; 11-Delft; 12-Dordrecht; 13-Tiel. Leeuwarden, Spijkenisse, Zwijndrecht and Gornichem are recoded in SPVA 1991, but not in other waves. And hence we drop the observations in these municipalities.
Nationality	'What is your nationality?' 1-Origin country's nationality; 2-Dutch nationality; 3-Both the origin country's and Dutch nationalities; 4-Others. The answers are recoded to a dichotomous variable which equals 1 if the respondent reported having Dutch nationality, and 0 otherwise.
Married	'What is your marital status?' 1-Married; 2-Divorced; 3-Widow/widower; 4-Never been married.
Number of children	'How many children are there living at home?' 'How many children are not living at home?'

Continued on next page

Table A1 – continued from previous page

Variables	Questions asked in the survey and coding
	These two answers are summed up.
Years since migration	'What is your length of stay in the Netherlands?'
Migration motives	'You are not born in the Netherlands. What was the main reason for coming to the Netherlands?' 1-Work; 2-Study; 3-Social safety; 4-Political situation in origin country; 5-Family reunion; 6-Marriage, family formation; 7-Come along with parents; 8-Others. The answers are recoded to four main categories: work, study, family and other reasons.

Table A2: Random Effects Logistic Estimation of Employment Using Panel Data, Adult Foreign-Born Men, All Sample Estimation, and Groups by Ethnicity, Education, Age At Migration and Migration Motives

	All	T&M	S&A	No NL Edu.	NL Edu.	AAM>18	AAM≤18	Econ	Non-Econ
Constant	1.187	1.694*	1.892	1.400	2.737	1.420	0.836	0.724	0.917
	(0.745)	(0.908)	(2.754)	(0.858)	(2.227)	(0.903)	(1.729)	(1.164)	(1.100)
Social Contacts									
Free time: equal contact	0.126	0.107	−0.319	−0.011	0.549	0.004	0.306	−0.090	0.392
	(0.339)	(0.382)	(0.802)	(0.381)	(0.828)	(0.405)	(0.723)	(0.526)	(0.491)
Free time: more with Dutch	−0.019	−0.265	−0.100	0.200	−0.162	0.176	−1.019	−0.053	0.193
	(0.480)	(0.589)	(0.923)	(0.577)	(0.945)	(0.581)	(1.036)	(0.699)	(0.731)
Ethnic org. membership	0.063	0.226	−0.410	0.180	0.439	−0.203	0.571	0.319	−0.043
	(0.325)	(0.361)	(0.816)	(0.367)	(0.824)	(0.383)	(0.726)	(0.512)	(0.461)
Dutch org. membership	1.595***	1.664**	1.245	2.300***	0.573	2.454***	0.924	2.484**	1.224*
	(0.545)	(0.669)	(0.933)	(0.799)	(0.778)	(0.893)	(0.837)	(0.998)	(0.715)
Human Capital									
Dutch: not very well	0.563*	0.634**	−0.906	0.553*	0.276	0.743**	0.345	0.911**	0.109
	(0.289)	(0.302)	(1.932)	(0.306)	(1.036)	(0.340)	(0.709)	(0.451)	(0.439)
Dutch: very well	1.119***	1.024**	−0.079	0.807*	1.424	0.865*	2.136**	0.957	0.796
	(0.375)	(0.406)	(1.791)	(0.419)	(1.009)	(0.484)	(0.876)	(0.616)	(0.527)
S.D. of the Model									
σ	−2.241***	−2.363***	−1.322	−2.159***	0.947	−2.318***	−2.017**	2.633***	−2.029***
	(0.412)	(0.458)	(1.315)	(0.478)	(2.338)	(0.510)	(1.010)	(0.718)	(0.725)
Log-likelihood	-431.286	-362.354	-61.823	-340.801	-60.437	-315.755	-97.889	-226.230	-191.787
Num. obs.	1368	894	474	951	343	997	344	727	641

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Standard errors are in the parentheses.

The dependent variable is a dichotomous variable for being employed or not.

Column (1) 'All' is the estimation for the whole sample. Column (2) 'T&M' is the estimation for the Mediterranean group (Turks and Moroccans), and column (3) 'S&A' is the estimation for the Caribbean group (Surinamese and Antilleans). Column (4) 'No NL Edu.' is the estimation for immigrants who completed their education in the country of origin, and column (5) 'NL Edu.' is the estimation for immigrants who completed education in the Netherlands. Column (6) 'AAM>18' is the estimation for immigrants whose age at migration (AAM) is older than 18, and column (7) 'AAM≤18' is the estimation for immigrants whose age at migration (AAM) is younger than 18. Column (8) 'Econ' is the estimation for the economic migrants, and column (9) 'Non-Econ' is the estimation for the non-economic migrants.

The reference for each categorical variable is as follows. Contact composition during free time: more contact with co-ethnics. Organisation membership: no membership. Dutch proficiency: do not speak Dutch or find it very difficult.

σ is the estimated random effects' standard deviation. The null hypothesis is no random effect ($\sigma = 0$).

Other human capital variables not shown in the table include highest education level, working experience in the country of origin and working experience in the Netherlands. Other control variables not shown in the table include ethnicity, years since migration, marital status, number of children, and the ethnic concentration level.

The variance inflation factors for social contact variables and language proficiency variable are all smaller than 4, implying no multicollinearity problem.

Table A3: Fixed Effects Estimation of Panel Data on Occupational Status, Adult Foreign-Born Men: All Sample and Groups by Occupation

	All	Blue-Collar	White-Collar
Constant	0.000	3.942^{***}	-3.499^{***}
	(0.397)	(0.625)	(0.443)
YSM	-1.179^{***}	-1.384^{***}	-0.695^{***}
	(0.176)	(0.289)	(0.194)
Free time: equal contact	1.200	−3.379	4.280^{*}
	(2.051)	(3.103)	(2.373)
Free time: more with Dutch	1.861	−1.399	3.481
	(2.692)	(3.962)	(3.228)
At work: equal contact	6.501^{**}	6.380	5.403
	(3.220)	(5.865)	(3.284)
At work: more with Dutch	6.580^{**}	6.057	5.551
	(3.345)	(5.782)	(3.499)
Dutch visits sometimes	−3.111	−4.873	−2.217
	(2.107)	(3.488)	(2.300)
Dutch visits frequently	3.185	2.295	1.576
	(2.500)	(3.935)	(2.849)
Ethnic org. membership	5.490^{**}	4.573	5.217^{*}
	(2.509)	(4.137)	(2.709)
Dutch org. membership	1.668	2.283	−0.015
	(2.294)	(3.254)	(2.838)
Dutch: not very well	2.187	4.280	1.154
	(2.487)	(4.416)	(2.577)
Dutch: very well	2.962	3.371	2.270
	(2.841)	(4.805)	(3.019)
R^2	0.089	0.102	0.069
Adj. R^2	0.070	0.062	0.034
Num. obs.	655	303	352

$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Standard errors are in the parentheses.

The dependent variable is ISEI. The fixed effects estimator is obtained by within transformation. Column (1) is the estimation for the whole panel data sample. Column (2) is the estimation for immigrants who are blue-collar workers. Column (3) is the estimation for immigrants who are white-collar workers.

The reference for each categorical variable is as follows. Contact composition during free time: more contact with co-ethnics. Contact composition at work: more contact with co-ethnics. Organisation membership: no membership. Dutch proficiency: do not speak Dutch or find it very difficult.

The variance inflation factors for social contact variables and language proficiency variable are all smaller than 4, implying no multicollinearity problem.

Table A4: Heckman Selection Model for Earnings, Employment, and Occupational Status, Adult Foreign-Born Men

	Earnings	Employment	ISEI
Constant	4.884 (0.839)***	0.938 (0.152)***	24.227 (5.853)***
Social Contacts			
Free time: equal contact	−0.018 (0.066)	0.030 (0.031)	1.722 (1.606)
Free time: more with Dutch	−0.061 (0.078)	−0.024 (0.041)	0.595 (2.091)
At work: equal contact	0.030 (0.077)		−0.768 (2.754)
At work: more with Dutch	0.016 (0.074)		0.427 (2.162)
Ethnic org. membership	0.074 (0.063)	0.036 (0.031)	3.613 (1.684)**
Dutch org. membership	0.143 (0.062)**	0.010 (0.034)	2.561 (1.652)
Human Capital			
Dutch: not very well	0.037 (0.062)	0.079 (0.029)***	−0.760 (1.607)
Dutch: very well	0.115 (0.076)	0.162 (0.037)***	2.393 (1.952)
Primary edu. in OC	−0.024 (0.054)	−0.012 (0.026)	−2.822 (1.339)**
Lower edu. in OC	0.033 (0.067)	0.033 (0.036)	−0.418 (1.692)
Intermed. edu. in OC	0.072 (0.075)	−0.011 (0.037)	−0.512 (1.847)
Higher edu. in OC	−0.142 (0.120)	−0.029 (0.060)	13.468 (2.919)***
Primary edu. in NL	−0.079 (0.070)	0.006 (0.035)	1.759 (2.003)
Lower edu. in NL	0.018 (0.089)	0.080 (0.045)*	−3.201 (2.903)
Intermed. edu. in NL	0.160 (0.113)	0.097 (0.055)*	4.164 (3.169)
Higher edu. in NL	−0.139 (0.097)	0.191 (0.052)***	16.141 (2.962)***
Exp. in NL	0.004 (0.012)	0.035 (0.005)***	−0.133 (0.288)
Exp. in OC	−0.014 (0.019)	−0.040 (0.009)***	−0.737 (0.493)
Exp. in NL squared/100	−0.019 (0.037)	−0.024 (0.016)	−0.398 (0.862)
Exp. in OC squared/100	0.129 (0.139)	0.165 (0.068)**	5.378 (3.592)
Control Variables			
Moroccans	−0.005 (0.071)	−0.014 (0.031)	−2.837 (1.639)*
Surinamese	0.017 (0.096)	0.061 (0.045)	2.433 (2.301)
Antilleans	−0.010 (0.091)	0.107 (0.048)**	4.388 (2.346)*
Dutch nationality	0.000 (0.052)	0.047 (0.025)*	−1.492 (1.298)
YSM	−0.005 (0.019)	−0.038 (0.008)***	0.264 (0.437)
YSM squared/100	0.023 (0.046)	0.024 (0.021)	0.106 (1.193)
Married	0.140 (0.063)**	0.056 (0.033)*	0.589 (1.536)
Number of children	0.014 (0.014)	0.001 (0.007)	0.481 (0.368)
Inflation factor	1.764 (0.825)**		
Contract working hours	0.014 (0.003)***		
Ethnic concentration	0.006 (0.016)	0.011 (0.009)	0.462 (0.459)
Selectivity Coefficient			
Inverse Mill's ratio	−0.094 (0.361)	−0.232 (0.172)	−1.212 (9.379)
R squared	0.070	0.250	0.400
Adj. R squared	0.050	0.240	0.380
Num. obs.	3155	4708	3490

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Standard errors are in the parentheses.

The dependent variable of column (1) is the natural logarithm of earnings. Column (2) is estimated using a linear probability model. The dependent variable of column (3) is ISEI.

The reference for each categorical variable is as follows. Contact composition during free time: more contact with co-ethnics. Contact composition at work: more contact with co-ethnics. Organisation membership: no membership. Dutch proficiency: do not speak Dutch or find it very difficult. Education in OC: no education. Education in NL: no education. Ethnicity: Turks.

The inflation factor is the Consumer Price Index (CPI) in year 1991, 1994, 1998 and 2002.

Year effect, city effect and sector effect are controlled in the regressions.

For inverse Mill's ratio, the null hypothesis is that there is no selection bias.

Table A5: Longitudinal Regression Analysis of Earnings Using Lagged Social Contact Variables, Adult Foreign-Born Men

	Earnings
Constant	5.280 (0.335)***
Social Contacts	
Free time: equal contact (t-1)	0.045 (0.056)
Free time: more with Dutch (t-1)	0.043 (0.069)
At work: equal contact (t-1)	−0.055 (0.088)
At work: more with Dutch (t-1)	0.042 (0.082)
Ethnic org. membership (t-1)	0.148 (0.063)**
Dutch org. membership (t-1)	0.106 (0.058)*
Human Capital	
Dutch: not very well (t-1)	0.010 (0.060)
Dutch: very well (t-1)	0.018 (0.069)
Primary edu. in OC	−0.050 (0.057)
Lower edu. in OC	0.051 (0.067)
Intermed. edu. in OC	0.022 (0.076)
Higher edu. in OC	0.104 (0.160)
Primary edu. in NL	−0.153 (0.071)**
Lower edu. in NL	−0.093 (0.075)
Intermed. edu. in NL	0.055 (0.075)
Higher edu. in NL	0.132 (0.086)
Exp. in NL	0.007 (0.011)
Exp. in OC	−0.015 (0.021)
Exp. in NL squared/100	−0.028 (0.031)
Exp. in OC squared/100	0.046 (0.161)
Control Variables	
Moroccans	−0.079 (0.063)
Surinamese	−0.014 (0.079)
Antilleans	0.074 (0.094)
Dutch nationality	−0.035 (0.058)
YSM	−0.015 (0.013)
YSM squared/100	0.049 (0.030)
Married	0.089 (0.061)
Number of children	0.029 (0.014)**
Inflation factor	1.472 (0.223)***
Contract working hours	0.017 (0.003)***
Ethnic concentration	0.022 (0.013)*
R^2	0.306
Adj. R^2	0.239
Num. obs.	568

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Standard errors are in the parentheses.

The dependent variable of column (1) is the natural logarithm of earnings. Column (2) is estimated using a logistic regression model. Contact composition during free time: more contact with co-ethnics. Contact composition at work: more contact with co-ethnics. Organisation membership: no membership. Dutch proficiency: do not speak Dutch or find it very difficult. Education in OC: no education. Education in NL: no education. Ethnicity: Turks.

The inflation factor is the Consumer Price Index (CPI) in year 1991, 1994, 1998 and 2002.

City effect and sector effect are controlled in the regressions.

The variance inflation factors for social contact variables and language proficiency variable are all smaller than 4, implying no multicollinearity problem.